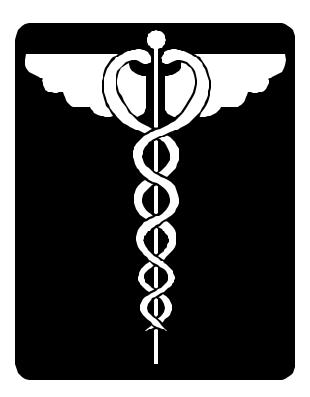
2005 Statewide Medical & Health Disaster Exercise

EXERCISE GUIDEBOOK

State of California Emergency Medical Services Authority



NOVEMBER 17, 2005



Executive Summary

Dear Exercise Participant:

It is time again for the Statewide Medical & Health Disaster Exercise! This is California's seventh annual exercise incorporating hospitals and ancillary healthcare providers, including long-term care facilities and clinics, pre-hospital care providers, auxiliary communication networks, blood banks, and local and regional governmental agencies.

Previously, the exercise focused on "man-made" disasters that confront emergency managers and the healthcare community. Exercises in 2003 and 2004 concentrated on biological terrorism events: Yersinia pestis (plague) and botulinum toxin, respectively. This year, the Exercise Planning Committee has designed the scenario to build on the issues and challenges that would confront the State should terrorists detonate a series of improvised explosive devices (IEDs) that cause numerous casualties. The focus will be on surge capacity, locating and/or allocating scarce resources, coordination with law enforcement, building security and implementation of emergency management plans. This exercise meets the requirements of the Health Resources and Services Administration (HRSA) as well as Centers for Disease Control and Prevention (CDC) grant requirements to conduct bioterrorism exercises.

The Operational Area (county) Exercise Contact is your point of contact for planning, questions and organization for the exercise. We encourage you to contact the Operational Area Exercise Contact early in the planning process to assist you in the execution of the 2005 exercise. Please see *PAGE* 57 of this guidebook for the listing of Exercise Contacts. To assist the Operational Area (OA) Exercise Contacts in planning and executing the exercise, there will be two planning conferences convened by the Emergency Medical Services Authority. The dates of the planning conferences will be announced in August.

Important Timelines and Deadlines

August 26, 2005	Deadline to fax the Intent to Participate Form (<i>PAGE</i> 21) to the Operational Area Medical/Health Exercise Contact (see list of contacts on <i>PAGE</i> 57).
September 9, 2005	Deadline for Operational Area Exercise Contacts to fax the OA Intent to Participate Form to the Regional Disaster Medical/Health Specialist (See Exercise Contact Toolkit)
<u>September 27, 2005</u> <u>September 28, 2005</u>	Disaster BootCamp, Commerce Disaster Conference, Commerce
<u>September 29, 2005</u>	Disaster Conference, Temecula
October 17, 2005 October 18, 2005	Disaster BootCamp, San Ramon Disaster Conference, San Ramon
November 17, 2005	The exercise will be conducted from 8:00 am until 12:00 pm.
<u>December 9, 2005</u>	Deadline to complete the appropriate provider-specific Exercise Evaluation to EMSA to receive a participation certificate. Only on-line evaluations will be accepted. Instructions for online access will be posted on the EMSA website

Thank you for your commitment to disaster medical planning and preparedness. We look forward to hearing about your successful exercise!

(www.emsa.ca.gov) at a later date.



Table of Contents

NOTE: This Guide has been formatted to accommodate double-sided printing

I.	Exerc	ise Plan Page Numb	er
	A. B. C. D.	Participants' Exercise Objectives Background Scenario for Exercise Exercise Day Scenario Sample PIO Media Advisory	5 9 9 19
II.	Exerc	sise Forms	
	A. B.	Participant Intent to Participate Form	21 23 27 31 35 37 39
III.	Refer	ence Materials and Contact Information	
	A. B. C. D. E. F. G. H.	Conducting the Exercise: Tips for Participants Facts about Improvised Explosive Devices Blast Injuries Additional Resources Glossary of Terms Operational Area Exercise Contacts. OES ACS Contacts by Region Mutual Aid Regions Map Mutual Aid System Concept	41 45 47 51 53 57 63 65 66
IV.	Appre	eciations	
	Disas	ter Exercise Planning Group	67



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EXERCISE OBJECTIVES

Hospital JCAHO Objectives

Objective I: [Joint Commission on Accreditation of Healthcare Organizations (JCAHO) EC 4.10.2 and EC 4.10.15 and Title 22 70741(b)]

Assess the facility's integration and participation in community-wide emergency management program for preparedness, planning and response. This integration includes area hospitals, public health, public and private emergency medical services (EMS) providers, law enforcement and emergency managers. As a result of this assessment, create collaboration and relationships with important providers to prepare for the exercise and any actual event.

Objective II: [JCAHO EC 4.10.2 and EC 2.9.1]

Implement the facility's emergency preparedness response plan using a recognized incident command system (preferably the Hospital Emergency Incident Command System, or HEICS). Participation in this exercise meets the California Title 22, 70741(d) and JCAHO EC 2.9.1. The Emergency Management Plan must be exercised at least twice per year.

Objective III: [JCAHO EC 4.10.8]

Assess the status of your facility and communicate that status to appropriate governmental agencies within the operational area, utilizing hospital communication systems, if applicable.

Objective IV: [JCAHO EC 4.10.10]

Assess the ability to respond to a public health emergency due to a terrorism IED event, including staff and current patient safety, and security of the facility.

Objective V: [JCAHO EC 4.10.18]

Implement alternate communication systems to contact public/private medical and health officials, including local government, "sister" and other supportive area facilities or hospitals.

Objective VI: [JCAHO EC 4.10.13]

Assess the response facility's capability of managing a large influx of patients and inpatient bed overcrowding, clear beds as needed and test the plans and procedures to activate alternate care sites.

Objective VII: [JCAHO EC 4.10.10]

Assess the response capability of managing scarce resources (including durable medical equipment, blood products, staff).

Objective VIII: [JCAHO EC 4.10.10]

Develop risk communication messages consistent with local authorities in a rapid and timely manner for internal and external dissemination.



Hospital Transfusion Service Objectives

Objective I:

Implement the Transfusion Service Emergency Plan (in conjunction with Hospital Emergency Incident Command System).

Objective II:

Actively monitor blood product inventory and follow established protocols for communicating that information to the Operational Area EOC via HEICS, and your primary blood supplier.

Objective III:

Communicate with ED physicians/RNs to determine anticipated ETA of injured, number of injured, types of injuries, early estimate of types and quantities of blood products that may be required.

Objective IV:

Utilize alternate communication systems to reach primary blood supplier to notify regarding anticipated amount and types of blood product.

Objective V:

Assess ability to manage incoming blood inventory and compatibility testing; and technologist call-back.

Objective VI:

Communicate with pre-determined local 'sister' hospitals for inventory status and options for transport methods and timelines of inventory transfers.

Ambulance Objectives

Objective I:

Implement the provider's emergency preparedness response plan using a recognized incident command system.

Objective II:

Dispatch will be kept apprised of ambulance status and communicate that status to appropriate local governmental agencies within the operational area, utilizing appropriate communication systems, if applicable.

Objective III:

Assess the ability to manage transportation of mass influx of patients due to blast injuries resulting from a terrorist-detonated ED, including the coordination of patient transportation destinations with healthcare facilities. Determine how patient tracking will be conducted.



Auxiliary Communications Systems (ACS) Objectives

Objective I: (Pre-Exercise)

Coordinate with local auxiliary communications radio operators on frequencies, protocols and forms used during an exercise/actual event.

Objective II:

Auxiliary Communication Systems (ACS) and redundant communications are coordinated with local Amateur Radio Operators familiar with using established frequencies, protocols and data collection/reporting forms.

Objective III:

Two-way communication messages are smoothly passed between regional and operational area providers.

Objective IV:

Appropriate frequencies are known and remain clear for communication of two-way messaging and data transfer.

Objective V:

Assess specific Policies & Procedures for the authorization and tracking of messages.

Objective VI:

Use ICS Form 213 to document ACS message traffic

Clinic Objectives

(includes Community Health Centers, Urgent Care Clinics and Indian Health Centers)

Objective I:

Implement the facility's emergency preparedness response plan (or emergency management plan), preferably using a recognized incident command-based system. (See glossary for the Hospital Incident Command System)

Objective II:

Assess the status of your facility and communicate that status to appropriate governmental agencies within the operational area, utilizing appropriate communication systems, if applicable.

Objective III:

Assess the status of your facility and communicate that status to appropriate hospital(s).

Objective IV:

Assess the response facility's capability of managing a large influx of patients and to consider accepting non-acute care hospital transfers during this public health crisis.

Operational Area Emergency Operations Center Objectives



Objective I:

Assess the Operational Area's ability to collect timely, accurate and appropriate data from participants, including situation and status reports and incident specific RIMs forms.

Objective II:

Implement EOC procedures and mechanisms for managing an IED event, including the procurement, management and allocation of scarce resources within the Operational Area.

Objective III:

Demonstrate the ability to access, enter data into and transmit Response Information Management System (RIMS) data to regional and state medical and health authorities.

Objective IV:

Activate auxiliary communications systems and pass two-way messages to Operational Area and Regional providers.

Objective V:

Develop risk communication messages consistent with appropriate public health and hospitals in a rapid and timely manner for internal and external dissemination.



EXERCISE DAY SCENARIO 8:00 a.m. until 12:00 p.m.

Note: Facilities may adapt the scenario to create a Master Sequence of Events List or injects to best meet their training needs.

BACKGROUND SCENARIO

This morning, a high profile and controversial political figure is scheduled to host a public forum on a controversial issue. This event will be held at a local auditorium, which can seat approximately **[insert number]** and will be nationally televised. To ensure the event runs smoothly and efficiently, many additional resources have been secured. Resources include: first aid stations and onsite ALS and BLS ambulances; security and traffic control personnel; a designated media area; shuttle buses; and on/off site parking areas, with attendants. Opening commentary is scheduled to begin at 7:30 a.m. The speech will begin at 8:00 a.m.

Due to the nature of the topic, the event brings together a vast array of people. All are eager to hear what the political figure has to say, but even more so to get their questions answered.

8:00 a.m. The Exercise Begins

Patients, hospital and ED staff are watching the commentary on televisions throughout the hospital. At 8:00 a.m. the speaker is introduced. As the speaker reaches the podium, a massive explosion occurs inside the auditorium. Mass hysteria and panic among spectators ensues and news commentators struggle to describe the situation.

The number of casualties is unknown at this time; ED staff begin to anticipate the arrival of trauma and burn patients.

Cellular and landline 9-1-1 calls begin flooding into CHP and local dispatch centers.

Considerations and Decisions:

Should you consider implementing security measures at your facility?
What are the triggers that implement HEICS in your facility?
When, and who activates the high-census (surge) plan to free up or add patient beds to
accommodate the anticipated influx of patients?
Local EMS alert or County EMS DOC?



8:02 a.m.

At 8:02 a second IED detonates in one of the on-site medical aid stations. As hospital staff watch events unfold, news of the second explosion is announced. News reports estimate numerous casualties.

	nsiderations and Decisions: Does the hospital/ambulance agency have an emergency call down procedure to increase ED and essential hospital staff? Does hospital have a security or lockdown procedure to protect the hospital and staff? Consider activation of HEICS.
	8:04 a.m.
A third	explosion on a main thoroughfare to the event detonates.
Staff is	exhibiting signs of distress at the possibility of loved ones being casualties of the event.
Consid	derations and Decisions:
	How does your organization deal with staff concerns at the possibility of family members being casualties of the event?
	How does the hospital allocate scarce resources when confronted by this potential mass casualty incident?
	How does the hospital procure additional resources (e.g. staffing including burn specialists, blood, trauma and burn supplies, body bags, inpatient beds, emergency department and/or operating room beds, morgue refrigeration units)?
	Does your organization have, and is it in the process of initiating, enhanced security procedures from color-coded Homeland Security Assessment System – Critical Infrastructure Protection (HSAS-CIP) guidelines?

8:10 a.m.

Law enforcement establishes a secure perimeter surrounding the area. Residents within that perimeter are being evacuated. Fire and EMS crews begin arriving at staging areas outside the auditorium. News reporters and helicopters surround the area. Local law enforcement are contacting the Federal Aviation Administration (FAA) to request a no-fly zone over the area.



8:15 a.m.

EMS has established nearby off-site staging areas. During the panic, fleeing spectators see the staged emergency vehicles and mob the offsite staging area, insisting on medical aid. Immediate EMS resources become overwhelmed and additional assistance is needed.

Considerations and Decisions (for on-scene 1st responders):
☐ Are evidence preservation protocols known or in place?
☐ Does ambulance agency dispatch a medical supervisor to large scale incidents?
☐ Are potential communication issues and contingency plans in place?
☐ Consider specialized PPE requirements
☐ Have designated egress routes been identified?
☐ Does ambulance provider have an in-field re-supply plan?
☐ Does ambulance provider have chain of command procedures?
Patients begin arriving at the ED and local clinics with a variety of blast injuries and are in a state of shock and panic.
Considerations and Decisions:
☐ Clinics may be just opening for business – is your emergency plan in place for obtaining additional staff
☐ Does your agency have a credentialing procedure for convergent volunteers?
8:20 a.m.

Local Department Operations Centers (DOC) and the Operational Area EOC activate. (optional)

Landline and cellular telephone lines are operational but circuits are overloaded and local officials may decide to declare that phone communications are now "non-functional". If that declaration is made, then the facility should activate their back-up communications system such as commercial radio or amateur radio, or else request that alternative communications resources be made available to the facility.

High census plans are activated and all in-patients assessed for possible discharge or transfer; elective surgeries and procedures are cancelled. Overall, the hospital is short-staffed as several staff had taken scheduled time off, or called in sick, to attend the forum.

To respond to the surge of patients, plans to augment staff and maximize current staffing resources are activated, including:

- ✓ Activation of call-back of staff
- ✓ Alteration of shift times, including implementation of 12-16-hour shifts
- ✓ Pre-scheduling staff to alternate shifts, or notify of standby status, (a.m., p.m., noc) to maximize allocation of current resources and ensure 24-hour-a-day staffing
- ✓ Are the morgue and refrigeration units cleared?



Considerations and Decisions:

circ	nsider the possibility that the telephone company may shut down service to avoid cuit overload; request your phone service remains operational on an 'essential vices' basis
□ На	s your facility EOC been activated?
	lidate and/or activate backup communication system for call-back of staff
	8:50 a.m.
	nealth officer declares a local medical emergency based on the large (and increasing) patients, and the early recognition that additional resources will be needed.
	ED and corresponding clinics are fully impacted. Physicians are ordering blood or patients.
	ations and Decisions:
\sqcup Wr	nat backup communication mechanism does the clinic have with the acute care

Cor

ш	what backup communication mechanism does the clinic have with the acute care
	hospital to alert them of incoming patients?
	What internal procedure(s) or plan(s) should the clinic activate in this situation?
	What other resources does the clinic require for the patient until EMS can arrive to
	transport the patients to the acute care hospital?
	How does the clinic communicate with local public health to notify them of the patients
	and to receive assistance?
	Does the clinic use ICS?
	Do clinics have procedures for dealing with mental health concerns?
	Does the clinic have procedures for canceling scheduled appointments?
	Consider protocols for notification to blood supplier

8:55 a.m.

The Mayor's Office receives a call from the Universal Adversary (a known terrorist organization) claiming responsibility for the bombings. Media has already begun to ask questions and is demanding information at the hospitals.

Because the event has a terrorism component, local AND national media are intent on "scooping" the story and media are quickly arriving at hospitals, clinics and the local health department to interview staff and victims.

A decision is made to advise the public that this event is the result of terrorism. Public alerts to media need to be written. These messages must be well scripted to not evoke public panic.



	8:55 a.m. (continued)	
Consi	derations and Decisions:	
	What information should be presented to the public?	
	What instructions should be given to the public? Does your agency or hospital have pre-scripted risk communication messages for this	
	public health emergency? If not, what is your process for quickly developing these	
П	messages? What steps have been taken to ensure a consistent message among the healthcare	
_	community and all levels of government agencies/officials?	
	What community or governmental agencies will participate in the press conferences	
	(public health, hospital officials, local government, physicians, EMS, public safety)? Who is the most appropriate person(s) to represent the healthcare facility at the press	
	conference(s) and who makes this decision? How often should the press conferences be	
П	scheduled? Where will the press conferences be convened within the community? Who decides the	
	location?	
	Who is the "lead" agency for the press conferences?	
A press conference is scheduled for 11:00 a.m. with the mayor, the health officer, appropriate hospital and clinic representatives and local public safety officials.		
	9:05 a.m.	
The Operational Area (OA) is reporting the following statistics to the REOC*: (Note: Please customize the OA statistics to simulate mass casualty event and capacity overload. Participants may simulate the statistics to meet individual needs for exercise play.)		
Statist	ics for the Operational Area (county):	
Numbe	er of patients admitted with blast injuries:	
Number of patients waiting to be seen:		
Estimated number of persons that may require hospitalization:		
Number of available beds:		
Number of operating rooms available:		
Emerg	ency Department space:	
Number of patients being seen at clinics:		
Number of clinic patients awaiting transport to hospitals:		
Numbe	er of deceased (coroner/ME confirmation):	

Capacity for refrigeration units in morgues (hospitals, et al)? _____ Blood products (RBC, platelets, plasma) anticipated needs: _____

Anticipated resource needs:



9:05 a.m. (continued)

Auxiliary Communication Systems (ACS) plans are activated. Local ACS members respond to provide critical communications as per current plans and procedures.

(The focus of the two-way messages is to encourage traffic between the Operational Areas to the Region and Region to State. However, local ACS provider may utilize the messages to stimulate traffic among healthcare providers (hospitals, EMS, clinics, etc.) and the OA EOC or other appropriate agencies.)

Telephone services cannot accommodate the surge of calls and the phone system is shut down. The loss of phone lines also interrupts communications with the California Health Alert Network (CAHAN). The hospitals, clinics, EMS providers, public health and Operational Area EOC are unable to place or receive calls.

A bomb squad with bomb-sniffing K-9s have arrived on site and begin the clearing process.

Considerations and Decisions:

What other redundant communication systems exist at the facility, agency and local level
to continue communications during the emergency?
What agencies can be contacted to provide additional security for critical clinic facilities?
What community resources can be utilized to assist in patient management, including
mental health issues?
How is your organization dealing with the mental health concerns of the staff and the
public?

10:00 a.m.

The bomb squad has cleared the venue of any other IEDs.

The Medical and Health Operational Area Coordinator (MHOAC) requests a status update from hospitals, to include (but not limited to) bed availability, estimated numbers of patients, critical issues, equipment status, and anticipated equipment needs.



10:15 a.m.

The hospital has nearly depleted its blood, platelets and plasma products supplies as well as trauma and burn supplies. Clinics are calling the local hospital(s) requesting disposable supplies (i.e., IV tubing, bandaging supplies, burn sheets, etc.) The hospitals state that they do not have means to transport supplies nor supplies to spare. Hospitals and clinics construct contingency plans to address the upcoming critical shortages. Vendors are contacted to provide the additional supplies and equipment. Blood center is advised of blood product needs.

Consi	derations and Decisions:
	Activate current processes and procedures to procure essential resources needed
	currently and within 12 hours.
	Is there a plan to ration resources?
	What are the proper channels of communication and who or what agency is contacted to
	obtain those resources?
	Request trauma and burn caches supplies
	What non-medical resources may be needed? (sanitation, water, transportation,
_	security)
	What resources and mechanisms are available to procure the needed supplies and
	equipment; and, who or what agency is contacted to provide those resources:
	Intra-hospital or Inter-hospital resources
	Community (contract) resources City and County trace in the line of the MILOAC.
	City and County resources, including the MHOAC
Care L patient	tensive care unit(s) within the hospital is at capacity and there are no additional Intensive Unit (ICU) beds. The ED is holding patients (insert appropriate number of ED its to increase strain on resources) awaiting inpatient beds, including ICU, telemetry and al-surgical.
Consi	derations and Decisions:
	What internal policies and procedures does your facility have for security and containing the influx of patients into the facility?
	Are agreements in place to provide additional security for critical clinic facilities?
	What community resources can be utilized to assist in patient management, including mental health issues?
П	Consider calling in various clergy members
	Consider calling in various diergy members
resour	flux of patients presenting to the ED continues in a steady stream, overwhelming ces, including staff (all levels of healthcare providers), lack of ED space, patient care nent (gurneys, oximeters, ventilators, burn beds) and supplies (medications, patient care es).



10:15 a.m. (continued)

Considerations and Decisions:

	What procedures or plans does the hospital have to expand treatment area space?
	If you received a Casualty Management Shelter from the HRSA funds, set the tent up
	and utilize it in the exercise
	What is the procedure for exempting the facility from DHS licensing and certification for
	the nurse staffing ratios during this emergency?
	What additional areas within or outside of your facility can be used to provide patient care?
	What is your procedure for notifying DHS Licensing and Certification about plans to utilize alternate care sites?
	What identification and information will you need from the public health investigators on arrival to the hospital?
	What access will the investigators have to hospital records?
	Have patient tracking procedures been adequate?
	_ patients (insert number to stress the facility and coroner system) have died and are
	ng coroner/ME to investigate and remove the bodies. The hospital must identify a secure
	hold the bodies until they arrive. Law enforcement and FBI are at the hospital
	nding to interview victims, families and review medical records. Family members of the
casuai	Ities arrive, seeking information and to see their loved ones.
Consi	derations and Decisions:
	What are your hospital policies on: interacting with law enforcement, evidence
	collection, and protecting patient privacy?
	What identification and information will you need from the investigators on arrival to the
	hospital?
	Where will you stage law enforcement officials within your facility to allow for interviews
	but not congest patient care areas?
	What is the back up plan to store bodies when the morgue is not adequate size or
	capacity?
	Are the bodies considered "evidence", and if so, what special precautions should be
_	taken for disposition of remains?
L	HIPPA requirements and internal protocols regarding releasing names of patients and deceased.



10:30 a.m.

Many patients will need weeks to months of supportive care before recovery. Scarce resources and patient management will be long-term issues for the facility and the community.

•	, , ,
Consi	derations and Decisions:
	What are the extended care implications for your organization? What recovery and mitigation efforts can you take now to reduce the impact of this event? As an acute care facility, have you integrated ancillary care facilities into your plans to accommodate a surge of patients? As an ancillary care facility (e.g. skilled nursing facility), does your emergency management plan integrate and coordinate with acute care facilities to accommodate a surge of long-term care patients in the community?
	als, clinics, EMS, and local public health construct contingency plans to address the ning critical shortages. Vendors are contacted to provide the additional supplies and ment.
	10:45 a.m.
	BI contacts your facility, stating they have received a credible threat that an IED may have blaced somewhere in your facility (this is an optional participatory item).
	Review the Bomb Threat Report Form Checklist and Mailroom Bomb Threat Procedures What are your procedures for notification of law enforcement? Who is in charge until law enforcement arrives?
	If law enforcement asks you to assist in the search of your facility, what are your procedures?
	What is your plan/policy regarding the use of radios/pagers while searching for a possible IED?
	What recovery and mitigation efforts can you take now to reduce the impact of this event, should an IED detonate?



11:00 a.m.

The influx of patients presenting to the ED continues in a steady stream, overwhelming resources, including staff (all levels of healthcare providers). There is a general lack of ED space, patient care equipment and supplies.

The mayor's press conference is held as planned and announces that the cause of the IEDs is from the Universal Adversary terrorist group. The public is asked to report all suspicious looking packages or items and to be observant for any persons or behavior looking out of place.

All facilities, agencies and providers report status to the OA. The OA and EOC compile the reports, enter information into RIMS and place mission requests as appropriate.

The Regional Emergency Operations Center (REOC) begins to receive reports from the OA and relays the information and resource requests to the Joint Emergency Operations Center (JEOC) and the State Operations Center.

12:00 p.m. THE EXERCISE ENDS



Your logo Or Letterhead Here

Sample Public Information Officer Media Advisory

Date: November XX, 2005

Contact: Jane Doe (XXX) XXX-XXXX

What:

California is conducting its seventh annual Statewide Medical & Health Disaster Exercise. Many hospitals, clinics, ambulance providers, public health and local governments across the state will voluntarily participate in the exercise. The scenario for the exercise, an improvised explosive device (IED), is a terrorist event and exercises the response of healthcare providers and governmental agencies to manage the influx of a large number of casualties and the management of resources needed to care for the patients. Last year over 300 healthcare facilities and ancillary healthcare providers, and nearly every county in

California participated in the exercise.

When: Thursday, November 17, 2005, from 8:00 a.m. until 12:00 p.m.

Where: In hospitals and other healthcare provider organizations, public health ambulance

services and local government agencies throughout the State of California.

Who: Exercise planners and supporters of this exercise include the Emergency

Medical Services Authority; Department of Health Services; State, Regional and Local Office of Emergency Services; Office of Statewide Health Planning and Development; California Healthcare Association; Regional Hospital Associations; Auxiliary Communications Systems (ACS) volunteers; California Blood Bank; and

hospitals and health systems.

Background: Participating in this exercise will help California communities be better prepared

to respond to an actual terrorist event or natural disaster, should one occur. Hospital participation in this exercise also qualifies as a formal disaster drill with an influx of patients as defined by the Joint Commission on Accreditation of Healthcare Organizations (JCAHO) that accredits hospitals, and meets the Health Resources and Services Administration (HRSA) and Centers for Disease

Control and Prevention (CDC) grant requirements for exercises.



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INTENT TO PARTICIPATE

- Please complete this form to indicate your intent to participate in the exercise.
- ❖ FAX THIS FORM TO THE OPERATIONAL AREA (COUNTY) MEDICAL/HEALTH EXERCISE CONTACT (LISTED IN PAGE 57) BY FRIDAY, AUGUST 26, 2005.

Type of Prov	ider:				
Hospital	Ancillary Healtho	are Facility	Ambulance	LEMSA	
OA	Local OES	ACS	Hospital Blo	ood Bank	Clinic
Name of Facility or Pr	ovider:				
Address:					
City:			Zip:		
County:					
Exercise Cod	ordinator or Contac	t:			
Telephone #:	:		Fax #:		
E-mail:					
Please check November 17,	appropriate box for y 2005.	your facility/aç	gency participatior	n in the Statewi	de Exercise,
	C	☐ Will partici	pate		
	[☐ Will not pa	rticipate		

- Please complete this form for each healthcare facility, ambulance provider or entity participating in the exercise.
- ❖ If you are a multiple facility or multi-campus facility, duplicate and complete one "Intent to Participate" form for each individual facility participating in the exercise.



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HOSPITAL FACILITY EXERCISE EVALUATION FORM

Please print and submit one evaluation form only for each facility to EMSA (c/o Anne Bybee, $1930 - 9^{th}$ Street, Sacramento CA) by December 9, 2005. Certificates for Participation will be provided only upon receipt of the Exercise Evaluation.

Hospital/He	althcare Facility Name:		
Address: _			
City:		Zip:	
Disaster Co	ordinator/Evaluator Name:		
Telephone #	#:	Fax #:	
E-mail:			
is located (L A.	le the <u>single best answer</u> that descr Listed on <i>PAGE</i> 65) Region I Region II Region IV Region V Region VI Don't Know	ibes in which OES Mutual Ai	d Region your facility
Circle the <u>si</u> A. B. C. D. E.	ingle best answer that describes yo Acute care hospital with a basic Acute care hospital with a stand Acute care hospital with no eme Specialty care hospital (i.e., trau Other	or comprehensive emergend by emergency department rgency department	cy department
Circle the <u>si</u> A. B. C. D.	ingle best answer that describes the 0 – 99 beds 100 – 299 beds 300 – 499 beds > 500 beds	e number of beds at your fac	lity.



Please indicate the level of participation of your facility during the exercise.

A. Full Scale Exercise

B. Functional Exercise

	C. D.	Tabletop Exercise Communications Exe	ercise			
Did yo	u activa A. B. C.	te your Emergency M Yes No Don't Know	anagement Pla	n during the ex	ercise?	
private	EMS p	o what extent did your roviders, law enforcer cy management respo	nent, and/or en			
0%	20%	40%	60%	80%	100%	N/A
		o what extent is your zed a recognized incide				
0%	20%	40%	60%	80%	100%	N/A
and w	as able	To what extent did the to communicate that sonal Area EOC or DO	status, using ho			
0%	20%	40%	60%	80%	100%	N/A
		To what extent was your ent, including the safe			•	
0%	20%	40%	60%	80%	100%	N/A
Objective V: To what extent was your facility able to establish, and effectively use, alternative communication systems to contact internal and external parties, including local government and partner facilities?						
0%	20%	40%	60%	80%	100%	N/A
	Objective VI: To what extent did your facility effectively manage a large influx of patients by clearing beds and activating alternate care sites?					
0%	20%	40%	60%	80%	100%	N/A



HOSPITAL FACILITY EXERCISE EVALUATION FORM (continued)

		To what extent we aff, etc.) obtained a						
0%	20%	40%	60%	80%	100%	N/A		
		To what extent we veloped and disser						
0%	20%	40%	60%	80%	100%	N/A		
	ould yo gement l	u evaluate your fac Plan?	ility's respon	se to the event a	and initiation of	the Emergency		
	A. B. C.	Excellent: no changes needed in the Emergency Management Plan Good: minor changes in the system/Emergency Management Plan identified Fair: moderate changes needed in the system/Emergency Management Plan dentified Needs improvement: substantial Emergency Management Plan review/changes dentified						
In gen	eral, to	what extent were yo	ou satisfied w	vith the Novemb	er 17 statewide	exercise?		
0%	20%	40%	60%	80%	100%	N/A		
Addition	onal Cor	mments and Recon	nmendations	?				



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B.

C.

No

Don't Know

State of California Emergency Medical Services Authority Statewide Medical & Health Disaster Exercise November 17, 2005

HOSPITAL TRANSFUSION SERVICE EVALUATION FORM

Please print and submit <u>one evaluation form only</u> for each facility to EMSA (c/o Anne Bybee, 1930 – 9th Street, Sacramento CA) by December 9, 2005. Certificates for Participation will be provided only upon receipt of the Exercise Evaluation.

Blood Bank I	Name:
Address:	_
City:	Zip:
Disaster Coo	ordinator/Evaluator Name:
Telephone #	: Fax #:
E-mail:	
is located (Li A. B. C. D. E. F. G.	Region IV Region V Region VI Don't Know
Please circle A. B. C.	e the <u>single best answer</u> that describes your facility. Acute Care Hospital with Transfusion Service and Blood Donor Facility. Acute Care Hospital with Transfusion Service. Hospital with general laboratory.
Please indica A. B. C. D.	ate the level of participation of your facility during the exercise. Full Scale Exercise Functional Exercise Tabletop Exercise Communications Exercise
•	ate your Emergency Management Plan during the exercise? Yes



identified

identified

D.

State of California Emergency Medical Services Authority Statewide Medical & Health Disaster Exercise November 17, 2005

HOSPITAL TRANSFUSION SERVICE EVALUATION FORM (continued)

	<u>ive I:</u> To what ency plan?	extent did you	r transfusion se	ervice activate a	a transfusion se	ervice-specific	
0%	20%	40%	60%	80%	100%	N/A	
invent	Objective II: To what extent did your transfusion service accurately assess blood product inventory and was able to communicate that information to the Operational Area EOC via HEICS? And to your blood supplier?						
0%	20%	40%	60%	80%	100%	N/A	
with a	ppropriate ED	at extent did yo staff to determi product require	ne the expecte			communicating lines of	
0%	20%	40%	60%	80%	100%	N/A	
comm	unication syste	at extent was year in order to resection, the type	equest blood pi	roducts from yo	our primary sup	plier? (please	
0%	20%	40%	60%	80%	100%	N/A	
		nt extent did you evventory, and co				chnologists?	
0%	20%	40%	60%	80%	100%	N/A	
	Objective VI: To what extent was communication with "sister" hospitals established to identify inventory status, timelines and methods of transporting blood products?						
0%	20%	40%	60%	80%	100%	N/A	
		uate your facilit s it relates to yo			initiation of the	Emergency	
	A. Excellent: no changes needed in the Emergency Management Plan B. Good: minor changes in the system/Emergency Management Plan C. Fair: moderate changes needed in the system/Emergency Management Plan						

Needs improvement: substantial Emergency Management Plan review/changes



HOSPITAL TRANSFUSION SERVICE EVALUATION FORM (continued)

In ger	neral, to what e	xtent were you	satisfied with the	ne November 1	7 statewide ex	ercise?		
0%	20%	40%	60%	80%	100%	N/A		
Additi	Additional Comments and Recommendations?							



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B.

C.

No

Don't Know

State of California Emergency Medical Services Authority Statewide Medical & Health Disaster Exercise November 17, 2005

CLINIC EXERCISE EVALUATION FORM

(Community Health Centers, Urgent Care Facilities and Indian Health Centers)

Please print and submit one evaluation form only for each facility to EMSA (c/o Anne Bybee, $1930 - 9^{th}$ Street, Sacramento CA) by December 9, 2005. Certificates for Participation will be provided only upon receipt of the Exercise Evaluation.

Clinic Facility	Name:		
Address:			
City:		Zip:	
Disaster Coo	ordinator/Evaluator Name:		
Telephone #:		Fax #:	
E-mail:			
	the <u>single best answer</u> that describes in sted on <i>PAGE</i> 65) Region I Region II Region III Region IV Region V Region VI	which OES Mutual Aid Region your facil	ity
Please circle B. C. D. E.	the single best answer that describes you Community Health Center Urgent Care Facility Indian Health Center Other:		
Please indica A. B. C. D.	ate the level of participation of your facility Full Scale Exercise Functional Exercise Tabletop Exercise Communications Exercise	y during the exercise.	
Did you activ A.	ate your Emergency Management Plan o	during the exercise?	



CLINIC EXERCISE EVALUATION FORM (continued)

<u>Object</u>	ive I: To what	extent was you	ır staff familiar v	with your Emer	gency Manage	ment Plan?
0%	20%	40%	60%	80%	100%	N/A
Object (ICS)?		extent is your s	staff familiar wit	h or use the Ind	cident Commai	nd System
0%	20%	40%	60%	80%	100%	N/A
		extent was you nent Plan succe	•	onse to the eve	ent and initiation	n of your
0%	20%	40%	60%	80%	100%	N/A
		•	ou able to succe rational Area E	essfully assess OC or DOC?	the status of y	our facility and
0%	20%	40%	60%	80%	100%	N/A
	ive III: To wha oriate and imme		ır staff correctly	evaluate the r	nature of the sit	uation and take
0%	20%	40%	60%	80%	100%	N/A
<u>Object</u>	<u>ive III</u> : To wha	t extent was yo	our facility prepa	ared to manage	e a large influx	of patients?
0%	20%	40%	60%	80%	100%	N/A
			ur facility have a efers into the fac	an adequate Mocility?	OU with local h	ospitals to
0%	20%	40%	60%	80%	100%	N/A
activat	Objective III: To what extent did your facility cancel/reschedule patient appointments and/or activated callback procedures to prepare for the acceptance of non-acute care hospital transfers into the facility?					
	<u>ive IV</u> : To wha oriate hospital(s	•	our facility succ	essful in establ	ishing commur	ication with the
0%	20%	40%	60%	80%	100%	N/A
<u>Object</u>	<u>ive IV</u> : To wha	t extent was yo	our facility prepa	ared to manage	e a large influx	of patients?
0%	20%	40%	60%	80%	100%	N/A



	LIFORM	CLINIC EXE	RCISE EVAL	UATION FOR	RM (continued))	
syste Oper	m (othe	To what extent did r than public teleph enter (DOC), Coun s?	one service) to	reach the loca	l Public Health	Department	
0%	20%	40%	60%	80%	100%	N/A	
	would yo	ou evaluate your fa Plan?	cility's respons	e to the event a	and initiation of	the Emergency	
	A. B. C.	Excellent: no changes needed in the Emergency Management Plan Good: minor changes in the system/Emergency Management Plan identified Fair: moderate changes needed in the system/Emergency Management Plan identified Needs improvement: substantial Emergency Management Plan review/changes identified					
In ge	neral, to	what extent were y	ou satisfied wi	th the Novemb	er 17 statewide	exercise?	
0%	20%	40%	60%	80%	100%	N/A	
Addit	ional Co	omments and Reco	mmendations?				



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AMBULANCE PROVIDER EVALUATION FORM

Please print and submit <u>one evaluation form only</u> for each facility to EMSA (c/o Anne Bybee, 1930 – 9th Street, Sacramento CA) by December 9, 2005. Certificates for Participation will be provided only upon receipt of the Exercise Evaluation.

Ambulance P	rovider Name:	
Address:		
City:	Zip:	
Disaster Coor	rdinator/Evaluator Name:	
Telephone #:	Fax #:	
E-mail:		
	the <u>single best answer</u> that describes in which OES Mutual Aid Region your sted on <i>PAGE</i> 65)	facility
A.	Region I	
B.	Region II	
C.	-9 -	
<u>D</u> .		
Ē.		
F.	 	
G.	Don't Know	
Please circle	the single best answer that describes your service.	
A.	Basic Life Support	
B.	Advanced Life Support	
C.	Both A and B	
D.	Nurse Critical Care Transport	
E.	Respiratory Therapist	
F.	Bariatric Transport	
G.	Other (specify)	
Circle the sing	gle best answer that describes your service.	
A	Private business	
B.	Fire service affiliate	
C.	Special district or local government (other than fire service)	
D.	Hospital affiliate	
E.	Other (specify)	



AMBULANCE PROVIDER EVALUATION FORM (continued)

Check the level of participation of your service during the exercise. A. Full Scale Exercise B. Functional Exercise C. Tabletop Exercise D. Communications Exercise Objective I: To what extent were ambulance personnel familiar with, and followed you Emergency Management Plan and ICS? 0% 20% 40% 60% 80% 100% N/A Objective II: To what extent was your ambulance dispatch service kept apprised of ar status, and able to communicate that status to appropriate local government entities?	mbulance
Emergency Management Plan and ICS? 0% 20% 40% 60% 80% 100% N/A Objective II: To what extent was your ambulance dispatch service kept apprised of ar	mbulance
Objective II: To what extent was your ambulance dispatch service kept apprised of ar	mbulance
0% 20% 40% 60% 80% 100% N/A	
Objective III: To what extent did your ambulance service adequately respond to the ir call volume while hospitals were on diversion due to ED overcrowding?	ncreased
0% 20% 40% 60% 80% 100% N/A	L
How would you evaluate your service's response to the event and initiation of the Eme Management Plan?	ergency
 A. Excellent: no changes needed in the Emergency Management Plan B. Good: minor changes in the system/Emergency Management Plan ide C. Fair: moderate changes needed in the system/Emergency Management identified D. Needs improvement: substantial Emergency Management Plan review changes identified 	nt Plan
In general, to what extent were you satisfied with the November 17 Statewide exercise	e?
0% 20% 40% 60% 80% 100% N/A	·
Additional Comments and Recommendations?	



AUXILIARY COMMUNICATIONS EVALUATION FORM

Please print and submit one evaluation form only for each facility to EMSA (c/o Anne Bybee, 1930 – 9th Street, Sacramento CA) by December 9, 2005. Certificates for Participation will be provided only upon receipt of the Exercise Evaluation.

Amateur Rad	dio Organization Name:		
Address:			
Disaster Cod	ordinator/Evaluator Name:		
Telephone #	:	Fax #:	
E-mail:			
is located (Li A. B.	e the <u>single best answer</u> that descristed on <i>PAGE</i> 65) Region I Region II Region III Region IV Region V Region VI Don't Know	ibes in which OES Mutual Aid F	Region your facility
Please circle A. B. C. D.	e the <u>single best answer</u> that descr Amateur Radio Volunteer CARES RACES Other (specify)	·	
Did you activ A. B. C.	vate your Emergency Managemen Yes No Don't know	Plan during the exercise?	

Objective I: (Pre-Exercise) Radio operators were familiar with auxiliary communication

protocols, frequencies, available backup frequencies and relevant forms?



AUXILIARY COMMUNICATIONS EVALUATION FORM (continued)

Objective II: To what extent were radio operators able to setup operational alternative/redundant systems, access appropriate frequencies and complete relevant forms?						
0%	20%	40%	60%	80%	100%	N/A
		To what extent were l, operational area a				
0%	20%	40%	60%	80%	100%	N/A
<u>Objec</u>	tive IV:	To what extent were	e frequencie	s available for tr	ansmission dur	ing the exercise?
0%	20%	40%	60%	80%	100%	N/A
	vould yo gement	ou evaluate your ser Plan?	vice's respo	nse to the event	and initiation o	f the Emergency
	 A. Excellent: no changes needed in the Emergency Management Plan B. Good: minor changes in the system/Emergency Management Plan identified C. Fair: moderate changes needed in the system/Emergency Management Plan identified D. Needs improvement: substantial Emergency Management Plan review and changes identified 					
In gen	eral, to	what extent were yo	ou satisfied v	vith the Novemb	er 17 Statewide	e exercise?
0%	20%	40%	60%	80%	100%	N/A
Addition	onal Co	mments and Recom	nmendations	?		



C.

Don't Know

State of California Emergency Medical Services Authority Statewide Medical & Health Disaster Exercise November 17, 2005

OPERATIONAL AREA EXERCISE EVALUATION FORM

Please print and submit <u>one evaluation form only</u> for each facility to EMSA (c/o Anne Bybee, $1930 - 9^{th}$ Street, Sacramento CA) by December 9, 2005. Certificates for Participation will be provided only upon receipt of the Exercise Evaluation.

Operational Area:					
Address: _	Address:				
City:		Zip:			
Disaster Co	oordinator/Evaluator Nam	ne:			
Telephone #	#:	Fax #:			
E-mail:					
Area is loca A. B. C. D. E. F. G. Circle the le A. B. C.	Ited (Listed on PAGE 65 Region I Region II Region IV Region V Region V Region VI Don't Know Evel of participation of yo Full Scale Exercise Functional Exercise Tabletop Exercise	our OA EOC during the exercise.	our Op		
•	, , ,	anagement Plan during the exercise?			
A. B. C.	Yes No Don't Know				
Did you acti A. B.	ivate the Medical and He Yes No	ealth Branch of the EOC?			



	OPI	ERATIO	ONAL AREA	EXERCISE E	VALUATION	FORM (contin	nued)
Did yo	u activa A. B.	te othei Yes No	r branches in th	ne OA EOC dui	ring the exercis	e?	
				spital status an ates provided to	d resource nee the region?	eds accurate, a	ppropriate and
0%	20%		40%	60%	80%	100%	N/A
					ion activated a esource status		nmunication to
0%	20%		40%	60%	80%	100%	N/A
				perational Area as appropriate?	EOC staff prof	icient in utilizin	g information
0%	20%		40%	60%	80%	100%	N/A
	<u>ive IV</u> : essagin		t extent were A	mateur Radio	Operators avai	lable and utilize	ed for two-
0%	20%		40%	60%	80%	100%	N/A
	ive V: nation w			sk communica	tions message	s developed an	d transmitted in
0%	20%		40%	60%	80%	100%	N/A
How would you evaluate your department's response to the event and initiation of the Emergency Management Plan?							
	 A. Excellent: no changes needed in the Emergency Management Plan B. Good: minor changes in the system/Emergency Management Plan identified C. Fair: moderate changes needed in the system/Emergency Management Plan identified D. Needs improvement: substantial Emergency Management Plan review and 						
		change	es identified				
In general, to what extent were you satisfied with the November 17 Statewide exercise?							
0%	20%		40%	60%	80%	100%	N/A
Additic	nal Cor	nments	and Recomme	endations?			



CONDUCTING the 2005 EXERCISE

Tips for Exercise Participants

This year, the Medical and Health Disaster Exercise scenario is providing participants with an opportunity to expand their facility-wide exercise. Many times, the drills and tabletops conducted have focused on the emergency department and emergency services and have not impacted all units and/or departments in the facility. This year, the scenario focuses on the entire healthcare facility and its ability to manage a large influx of patients and address the allocation of scarce resources including staffing, inpatient beds and equipment, supplies and requesting newly developed and allocated trauma and burn caches. The 2005 Medical and Health Exercise Planning Committee encourages hospitals to involve all units/departments and staff within the hospital to actively participate in the exercise, activate departmental emergency plans and reach out to other healthcare partners, as well as local Auxiliary Communications system volunteers, EMS, law enforcement, etc. to meet the demands of the surge of patients.

The exercise day commences with a controversial figure hosting a public forum. Terrorists detonate three improvised explosive devices in rapid succession causing numerous casualties and structural damage. Patients begin arriving in hospitals and clinics in increasing volume. Should this be an actual event, the hospital would be confronting a wide variety of clinical care issues while coordinating efforts with other community hospitals and local response agencies (EMS agencies, OES, law enforcement, among others). When planning and executing your exercise, it is recommended that you begin the exercise with a rapid increase in patients presenting to the hospital that require high level, long term medical care.

There are different types of exercises that can be conducted including full scale, functional, tabletop and communication (see glossary for definition of exercises, *PAGE* 53). Each of these exercises can test your response and management of the event.

The following are some recommendations to increase participation in this exercise:

- □ Activate the hospital's Emergency Operations Center (EOC) and the Hospital Emergency Incident Command System (HEICS) or unified command sections to manage the event and address the policy issues as described in the scenario.
- □ Incorporate into the activation personnel who may not have previously played a role in the EOC.
- Activate high census plans in all departments and move "live" patients, "live" volunteer patients, or "paper" patients as appropriate to vacate beds and accept new patients.
- Consider implementing bomb threat procedures (security, search or evacuation) to assist in determining facility priorities, patient care management, staff protection and coordinating with local law enforcement.

Tips for Exercise Participants (continued)



- □ Test the call back (staff notification) systems and lists, update lists and procedures as appropriate.
- □ Inventory all linen, nutritional supplies (food) and housekeeping materials to determine if additional quantities will be needed for the large patient influx and high patient census.
- □ Based on the scenario and trauma and burn care issues, determine the health care disciplines that will be needed for this event and project these numbers for 4, 8, 12, 24 hours and longer.
- □ Activate internal and external security plans and institute traffic control measures, visitor access and set up perimeter barricades, etc.
- □ Prepare a plan to "lock down" the facility defining under what authority within the facility or outside of the facility a lock down would be ordered, when and how a "lock down" would occur and when the "lock down" would be discontinued.
- □ Review the ability to maintain ongoing Emergency Department services in the event of a lock-down and the ability to receive ambulance traffic and walk-in patients.
- Assess your specific Policies and Procedures for authorization and tracking of messages.
- Activate the hospital's auxiliary communications system (amateur radio) and test message sending and receiving.
- □ Determine ways in which large numbers of patients requiring specialty care needs can be safely cared for at your facility.
- □ Arrange for the influx of patients using "live" volunteer patients (or "paper" patients) coming through the Emergency Department as described in the scenario.
- □ Stage a convergence of volunteers into the facility offering clinical and non-clinical assistance with live persons (or "paper" volunteers). How will the facility deal with and manage these well-meaning volunteers? How will licensing and credentialing issues be dealt with?
- □ Institute procedures in business office and patient registration to manage an overwhelming number of patients and implement Hospital Information System/ Information Technology emergency policies and procedures to accommodate the business needs of the facility.
- □ Determine ways in which to disseminate information to your hospital or campus to maintain stability and decrease panic.
- Activate your media relations or public information officer to respond to multiple media calls for information and/or convergence of media into your facility.

Tips for Exercise Participants (continued)



- □ Assign a room to serve as the Incident Command Post (Hospital EOC) equipped with dedicated phone and/or FAX lines for 'emergency' communications.
- □ If you have a room designated for incident command purposes, consider having access to the outside (via window or door) so Auxiliary Communication staff can run antenna cable.
- Identify a core group of operators, including a moderator and scribe, with access to a digital recorder or laptop for documenting events for use in after action reports.
- □ Advertise and invite partners/agencies/participants well in advance of exercise and hold informational meetings as needed.

These are only a few ideas to help conduct a successful exercise that will engage and involve multiple units/departments in a hospital. Use your imagination and be creative in your planning for the 2005 Statewide Medical and Health Disaster Exercise!



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IMPROVISED EXPLOSIVE DEVICES (IEDs) - FACTS

An IED can be almost anything with any type of material and initiator. It is a 'homemade' device that is designed to cause death or injury by using explosives alone or in combination with toxic chemicals, biological toxins, or radiological material. IEDs can be produced in varying sizes, functioning methods, containers and delivery methods. IEDs can utilize commercial or military ordnance and ordnance components.

They are unique in nature because the IED builder has had to improvise with the materials at hand. Designed to defeat a specific target or type of target, they generally become more difficult to detect and protect against as they become more sophisticated. IEDs fall into three types of categories:

- 1. Package Type IED
- 2. Vehicle-Borne IED (VBIEDs)
- 3. Suicide Bomb IED

Though they can vary widely in shape and form, IEDs share a common set of components and consist of the following:

- An initiation system or fuse;
- Explosive fill;
- A detonator:
- A power supply for the detonator, and
- A container

Usually, IEDs are of crude design. However, terrorist groups have been known to produce sophisticated devices. Since these devices are nonstandard, there are no specific guidelines for explosive ordnance disposal personnel to use to positively identify or categorize them. Highly sophisticated IEDs have been constructed from arming devices scavenged from conventional munitions and easily purchased electronic components, as well as consumer devices such as mobile phones. The degree of sophistication depends on the ingenuity of the designer and the tools and materials available. Today's IEDs are extremely diverse and may contain any type of firing device or initiator, plus various commercial, military, or contrived chemical or explosive fillers.

Injuries sustained as a result on an IED are caused by the pressure wave of the primary blast, the penetrating and non-penetrating wounds of the secondary blast, and the injuries associated with being thrown some distance. The medic or lifesaver must be aware of multiple wounds and combination wounds and must know how to thoroughly treat the patient. Additionally, treatment of shock becomes important.



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BLAST INJURIES

The following reference was provided by courtesy of International Trauma and Disaster Institute (ITDI), Massachusetts General Hospital, Boston.(Any additions not provided by the authors have been footnoted)

Briggs SM, Brinsfield KH. "Blast Injuries". Advanced Disaster Medical Response Manual for Providers. 2003: 93-97.

The injuries caused by explosives and bombings can be divided into four categories: primary blast injury, secondary blast injury, tertiary blast injury, and quaternary (miscellaneous) injuries. Casualties often sustain mixed types of injuries, although secondary blast injury is the most common cause of death in blasts

PRIMARY BLAST INJURY (PBI)

Blasts produce a <u>pressure wave</u>, also called overpressure, which moves out from the center of the explosion at supersonic speed, losing speed and energy as it propagates. Primary blast injury is due solely to the direct effect of the pressure wave on the body. The magnitude of this wave depends on the size of the explosion and the environment in which it occurs: the more powerful the blast, the greater the damage.

<u>Underwater</u> blasts are uncommon but noteworthy because they produce a severe injury pattern. The magnitude of a shock wave is increased by detonating the explosive underwater. Because of water's relative incompressibility, the wave propagates faster, and the wave is slower to lose energy with distance. The lethal radius around an explosion underwater is about three times that of a similar explosion in the air.

The effects of the pressure wave are increased in a <u>closed space</u> such as a building or a bus. The amplification of the shock wave occurs because it is reflected off of solid objects: walls, floors, ceilings, etc. This phenomenon, called the <u>reflected impulse</u>, can severely injure victims far from the actual detonation site. In outdoor bombings, the blast wave dissipates rapidly.

The shock wave causes injury via three mechanisms which can combine to create multiple traumas in the blast victim.

<u>Spalling</u>: When a shock wave moves between tissues of different densities, such as the lung and the ear, the wave changes velocity at the interface. This disrupts the tissue, causing injury. <u>Implosion</u>: The sudden expansion of gasses compressed by the passing shock wave can rupture hollow organs such as the intestine.

<u>Shearing</u>: Shearing is the phenomenon that occurs when tissues of different densities respond to the pressure wave by moving at different speeds in relation to each other.

Primary blast injury occurs almost exclusively in gas-containing organs: the ear, the respiratory tract, and the GI tract.



Most victims of blast lung (severe pulmonary contusion) die immediately. Late deaths are caused by progressive pulmonary insufficiency.

Alveolar-pulmonary venous communications, the source of air emboli within arterial circulation, are a leading cause of early mortality from primary blast injury. Death may also be caused by cerebral and coronary air embolism.

Injury to the gut may be present in all blasts, but is particularly severe in those that occur underwater. Bowel injuries range from subserosal or intramural hemorrhage to frank rupture. The colon is the hollow viscus most commonly disrupted. Gastric injuries are usually less common and less severe.

SECONDARY BLAST INJURY

Secondary blast injury is the <u>most common cause of death</u> in blast casualties. It is caused by flying debris, including ordnance projectiles, metal, and glass, that is generated by the explosion. The wounding potential of the flying debris depends on the shape and velocity of the object and the degree of protection afforded by the victim's clothing. Penetrating injuries occur most often in exposed areas, such as the head, neck, and extremities. Traumatic amputations, fractures, and soft tissue injuries are common.

TERTIARY BLAST INJURY

Tertiary blast injury is caused by propulsion of the body by the shock wave into solid objects. Head, spine, and extremity injuries are common.

QUATERNARY¹ (MISCELLANEOUS) BLAST INJURIES

Exposure to the intense heat generated by the blast can cause thermal and inhalation burns. Structural collapse can cause crush syndrome with secondary complications such as compartment syndrome. Asphyxia, toxic inhalations, complications of other conditions in relation to trauma (including pregnancy, the therapy with anticoagulants, etc.), hazardous/radioactive material exposure, may also be considered in this category.

Building collapse is associated with one of the highest rates of mortality in blast injured persons for three reasons: (1) the large quantity of the explosives required to collapse modern structures; (2) the large number of crush injuries that are associated with high mortality rates; and (3) the likelihood of exposure to reflected blast waves that can increase the severity of any primary blast injuries. Further, building collapse often prolongs extrication time, which delays transport of the injured to definitive medical care.

[Note: DePalma, Champion, et. al. include building collapses, crush injuries, compartment syndromes under the category tertiary blast injuries]¹



PROGNOSTIC FACTORS AFFECTING MORBIDITY AND MORTALITY OF BLAST CASUALTIES

Magnitude of the blast Environment of the blast (outdoor vs. indoor vs. underwater) Structural collapse Triage accuracy Available medical resources

Table 13-1. Summary: mechanism of Blast Injuries

Category	Mechanism of Injury
Primary Blast Injury	Blast wave
Secondary Blast Injury	Victim struck by flying debris
Tertiary Blast injury	Victim impacted against stationary object
Quaternary (Miscellaneous)	Burns, inhalation injuries, crush injuries

Other References

- 1 DePalma RG, Burris DG, Champion HR, Hodgson MJ. "Blast Injuries". New England Journal of Medicine. March 31, 2005; 352(13):1335-1342. *RECOMMENDED READING*
- 2 Fryeburg ER. "Medical Management of Disasters and Mass Casualties From Terrorist Bombings: How Can We Cope?" Journal of Trauma. August 2002; Volume 53(2); 201-212.



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ADDITIONAL RESOURCES

General Security:

- 1. <u>"Fire and Emergency Services Preparedness Guide for the Homeland Security Advisory System"</u>, 1/2004, http://www.emergency.com/2004/hsas-guide.pdf
- 2. "Improvised Explosive Devices (IEDs) / Booby Traps", http://www.globalsecurity.org/military/intro/ied.htm
- 3. "Minimum Personal Protective Equipment (PPE) for Ambulance Personnel, Guidelines #216", California EMS Authority, http://www.emsa.ca.gov/aboutemsa/emsa_pubs.asp
- 4. "Preparing for a Terrorist Bombing A Common Sense Approach", Fact Sheet, CDC, 7/19/05, http://www.bt.cdc.gov/masstrauma/pdf/preparingterroristbombing.pdf

Improvised Explosive Devices:

- 1. "Explosive Forces of Improvised Explosive Devices", Jeff Slotnick, http://www.securitydriver.com/aic/stories/article-114.html
- 2. "IED Safe Standoff Distance Sheet", 2004, http://www.bombdetection.us/newsworthy.htm
- 3. "Improvised Explosive Device", http://www.answers.com/topic/improvised-explosive-device

Trauma & Blast Clinical:

- 1. "Blast Lung Injury What Clinicians Need to Know", CDC, 7/05:
- 2. http://www.bt.cdc.gov/masstrauma/blastlunginiurv.asp
- 3. "Explosions and Blast Injuries: A Primer for Clinicians", http://www.bt.cdc.gov/masstrauma/explosions.asp
- 4. Mass Trauma Preparedness and Response Resources, CDC:
- 5. http://www.bt.cdc.gov/masstrauma/index.asp



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Auxiliary Communications Services (ACS)	The Auxiliary Communications Service (ACS) is an emergency communications unit that provides State and local government with a variety of professional unpaid [volunteer] skills, including administrative, technical and operational for emergency tactical, administrative and logistical communications. ACS works with agencies and cities within the Operational Area, neighboring governments and the State OES Region. Its basic mission is the emergency support of civil defense, disaster response and recovery with telecommunications resources and personnel. CARES: California Amateur Radio Emergency Services CARES is specifically tasked to provide amateur radio communications support for the medical and health disaster response to state government. RACES: Radio Amateur Civilian Emergency Services RACES is a local or state government program established by a civil defense official. It becomes operational by: 1) appointing a radio officer; 2) preparing a RACES plan; and 3) training and utilizing FCC licensed Amateur Radio operators. RACES, whether part of an ACS or as a stand alone unit, is usually attached to a state or local government's emergency preparedness office or to a department designated by that office, such as the sheriff's or communications department.
California Blood Bank Society (CBBS)	An organization of individuals who serve in all aspects of blood collection and transfusion. CBBS blood centers are primarily designated as community blood centers; however, some centers are affiliated with American Red Cross or United Blood Services. The CBBS Disaster Plan extends nationally to an Inter-Agency Task Force in the event of major disasters or acts of terrorism.
Emergency	A condition of disaster or of extreme peril to the safety of persons and property caused by such conditions as air pollution, fire, flood, hazardous material incident, storm, epidemic, riot, drought, sudden and severe energy shortage, plant or animal infestations or disease, an earthquake, volcanic eruption or terrorist event.
Emergency Management	The organized analysis, planning, decision making, assignment and coordination of available resources to the mitigation of, preparedness for, response to or recovery from emergencies of any kind, whether from man-made attack or natural sources.
Emergency Operations Center	A centralized location from which emergency operations can be directed and coordinated.



Exercise	Communications: The communications exercise is designed to test and evaluate communication systems, including lines and methods of communicating during a disaster. Alternative communication systems can also be tested, including amateur radio, cell and satellite systems, among others. Tabletop: An exercise that takes place in a classroom or meeting room setting. Situations and problems presented in the form of written or verbal questions generate discussions of actions to be taken based upon the emergency management plan and standard emergency operating procedures. The purpose is to have participants practice problem solving and resolve questions of coordination and assignment in a non-threatening format, under minimal stress. Functional: The functional exercise is an activity designed to test or evaluate the capabilities of the disaster response system. It can take place in the location where the activity might normally take place, such as the command center or incident command post. It can involve deploying equipment in a limited, function-specific capacity. This exercise is fully simulated with written or verbal messages. Full Scale: This type of exercise is intended to evaluate the operational capability of emergency responders in an interactive manner over a substantial period of time. It involves the testing of a major portion of the basic elements existing in the emergency operations plans and organizations in a stress environment. Personnel and resources are mobilized.
Hospital Emergency Incident Command System (HEICS)	HEICS is an emergency management system that employs a logical, unified management (command) structure, defined responsibilities, clear reporting channels and a common nomenclature to help unify hospitals with other emergency responders. Information on HEICS can be obtained through the California EMSA website at www.emsa.ca.gov.
Health Resources & Services Administration (HRSA)	A subdivision of the US Dept. of Health & Human Services, HRSA provides funding and directs programs that improve the Nation's health by expanding access to comprehensive, quality health care.
Improvised Explosive Device (IED)	An IED is a device placed or fabricated in an improvised manner incorporating destructive, lethal, noxious, pyrotechnic, or incendiary chemicals and designed to destroy, incapacitate, harass, or distract. It may incorporate military stores, but is normally devised from nonmilitary components. An IED typically consists of an explosive charge, possibly a booster charge, a detonator and a mechanism either mechanical or electronic, known as the initiation system.
	known as the initiation system.



Incident Command System (ICS)	The nationally used standardized on-scene emergency management concept is specifically designed to allow its user(s) to adopt an integrated organizational structure equal to the complexity and demand of single or multiple incidents without being hindered by jurisdictional boundaries. ICS is the combination of facilities, equipment, personnel, procedures and communications operating within a common organizational structure, with the responsibility of managing resources to effectively accomplish stated objectives pertinent to an incident.
Long-Term Care Facilities	A collective term for healthcare facilities designated for the care and treatment of patients or residents requiring rehabilitation or extended care for chronic conditions. The Department of Health Services, Licensing and Certification Division licenses these facilities.
Medical and Health Operational Area Coordinator (MHOAC)	The MHOAC is responsible for coordinating mutual aid resource requests, facilitating the development of local medical/health response plans and implementing the medical/health plans during a disaster response. During a disaster, the MHOAC directs the medical/health branch of the Operational Area EOC and establishes priorities for medical/health response and requests. This coordinator was formerly known as the Operational Area Disaster Medical/Health Coordinator.
NIMS	The National Incident Management System, developed under Homeland Security Presidential Directive 5, provides a consistent nationwide approach for federal, state, local and tribal governments to work effectively to prepare for, respond to and recover from domestic incidents.
Operational Area	An intermediate level of the State emergency services organization, consisting of a county and all political subdivisions within the county.
Regional Emergency Operations Center (REOC)	The Regional Emergency Operations Center (REOC) is the first level facility of the Governor's Office of Emergency Services to manage a disaster. The REOC provides an emergency support staff operating from a fixed facility, which are responsive to the needs of the operational areas and coordinates with the State Operations Center.
Regional Disaster Medical and Health Coordinators (RDMHC)	At the regional level, EMSA and DHS jointly appoint Regional Disaster Medical and Health Coordinator (RDMHC) whose responsibilities include supporting the mutual aid requests of the MHOAC for disaster response within the region and providing mutual aid support to other areas of the state in support of the state medical response system. The RDMHC also serves as an information source to the state medical and health response system.



Regional Disaster Medical Health Specialist (RDMHS)	The RDMHS is a full-time position funded by EMSA and CDHS to provide the day-to-day planning and coordination of medical and health disaster response in the six mutual aid regions. During disaster response, the RDMHS is the key contact for Op Areas to request and/or to provide medical and health resources.
RIMS (Response Information Management System)	California's Response Information Management System (RIMS) is an internet-based system used to coordinate and manage the State's response to disasters and emergencies. RIMS automates the State's Standardized Emergency Management System (SEMS).
Standardized Emergency Management System (SEMS)	SEMS is the emergency management system identified by Government code 8607 for managing emergency response to multi-agency or multi-jurisdictional operations. SEMS is based on the Incident Command System and is intended to standardize response to emergencies in California.
State Operations Center (SOC)	The SOC is established by OES to oversee, as necessary, the REOC, and is activated when more than one REOC is opened. The SOC establishes overall response priorities and coordinates with federal responders.
Terrorism	The calculated use of violence or the threat of violence to attain goals that are political, religious or ideological in nature. This can be done through intimidation, coercion or instilling fear. Terrorism includes a criminal act against persons or property that is intended to influence an audience beyond the immediate victims.



Operational Area (County) Medical/Health Exercise Contacts

(Note: some counties are not participating in the Statewide Exercise in 2005, but remain on this list as a resource for future reference)

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Statewide;	San Leanuro, CA 94377	Linaii. <u>jiin:momssey@acgov.org</u>
GOLDEN		
GUARDIAN		
	Doug Buchanan	
Alpine	Deputy Director	DI 000 500 5005
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Otariiolado	Modeste, O/C 55555	Email: abdonanar emvomod.com
	Dr. Mark Lundberg	
Butte	Health Officer	Phone: 530-538-7581
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ONLY		
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El Dorado	Margaret Williams	Phone: 530-621-6243
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madera, raiare)	Grinnell Norton	<u> </u>
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	and,	
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Southern Region ACS Officer

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Coastal Region ACS Officer

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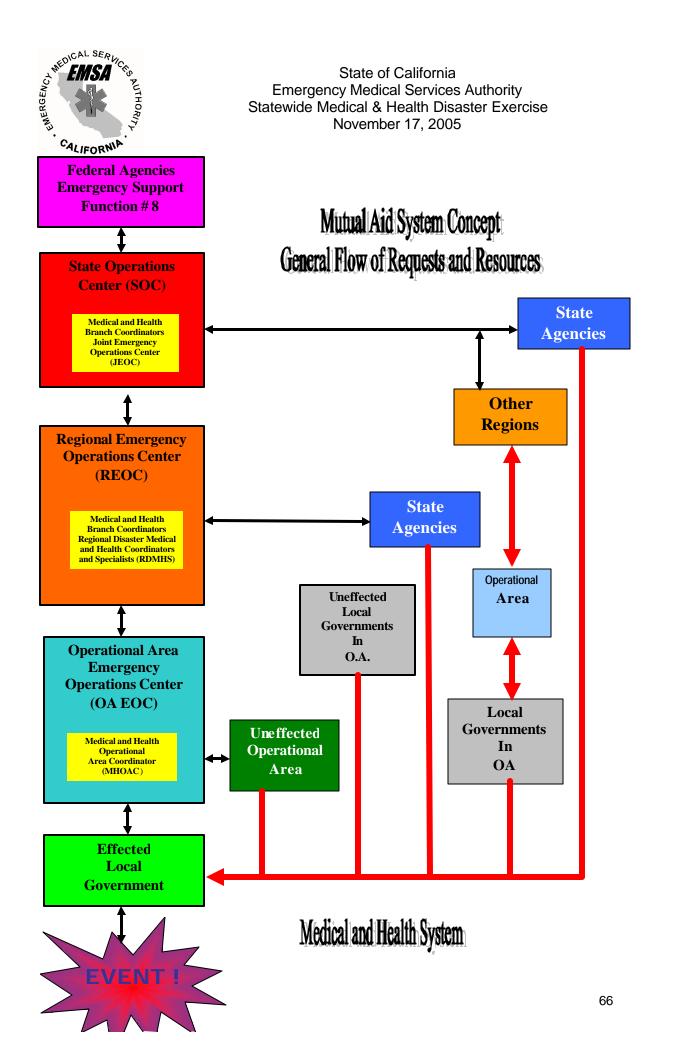
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OES Mutual Aid Regions







The Emergency Medical Services Authority would like to thank the Disaster Exercise Planning Group members for their contribution to the 2005 Statewide Medical and Health Disaster Exercise Guidebook and planning process.

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